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ABSTRACT

Two experiments investigated the relationship between cultural schemata and reading comprehension. Subjects for the first experiment were 186 eighth grade students who attended one of five schools--two predominately black inner-city schools, two predominately white working class area schools, and a predominately white agricultural area school. Subjects in the second experiment were 105 eighth grade students from a predominately black city school or from one of two predominately white agricultural area schools. The subjects read a passage that deals with an instance of "sounding" or "playing the dozens," a form of verbal ritual insult usually found in the black community. Black subjects tended to interpret the passage as being about verbal play, while white subjects tended to interpret it as being about physical aggression. Scores on theme-revealing disambiguities and intrusions and on an inference probe task showed a close relationship to the subjects' cultural background. The evidence showed that cultural schemata can influence how prose material is interpreted. (FL)

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CENTER FOR THE STUDY OF READING

Technical Report No. 201

CULTURAL SCHEMATA AND READING COMPREHENSION

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Abstract

Two experiments investigated the relationship between cultural schemata and reading comprehension. Black and white eighth graders read a passage that dealt with an instance of "sounding" or "playing the dozens," a form of verbal ritual insult predominantly found in the black community. Black subjects tended to interpret the passage as being about verbal play, whereas white subjects tended to interpret it as being about physical aggression. Scores on theme-revealing disambiguations and intrusions and on an inference probe task showed a close relationship to the subjects' cultural background. The evidence shows that cultural schemata can influence how prose material is interpreted. The results were discussed in light of attempts to make reading materials and standardized test items free from cultural bias.

Cultural Schemata and Reading Comprehension

Readers acquire meaning from text by analyzing words and sentences against the backdrop of their own personal knowledge of the world. Personal knowledge, in turn, is conditioned by age, sex, race, religion, nationality, occupation--in short, by a person's culture. This paper contains an exploration of the role of cultural schemata in reading comprehension. In its most general form, our hypothesis is that culture influences knowledge, beliefs, and values; and that knowledge, beliefs, and values influence comprehension processes. There has been a fairly large amount of research investigating the second of these links; less research has included the first.

A tradition of research which can be traced to Bartlett (1932) has assessed the effect of beliefs on the learning and remembering of information in brief texts. A recent example of research of this type is a study by Read and Rosson (Note 1). They used a questionnaire to identify people who were either strongly for or strongly against nuclear power. Those identified were asked to read a passage about a fire at a nuclear power station. The results on a multiple choice test given immediately after the passage showed little influence on beliefs. However, when the test was delayed one or two weeks, people tended to distort the passage in a manner consistent with their beliefs. Subjects who favored nuclear power were able to reject antinuclear statements which had no basis in the passage, but they tended to accept spurious, pronuclear statements.

Subjects who opposed nuclear power produced the opposite pattern. Occasionally, studies have failed to find an influence of beliefs on text interpretation. However, findings such as those of Read and Rosson are typical, provided subjects read lifelike prose in a normal manner such that their beliefs are actually engaged (cf. Sheppard, Note 2).

The link to culture can be established only in research that includes subjects with different backgrounds. Anderson, Reynolds, Schallert, and Goetz (1977) completed an experiment that involved female music education majors and male physical education majors. They read a passage that could be given either a prison break or a wrestling interpretation, and another passage that could be understood in terms of an evening of card playing or an evening of playing by a woodwind quartet. Scores on a disambiguating multiple choice test and theme-revealing disambiguations and intrusions in free recall showed striking relationships to the subjects' background. Physical education majors usually gave a wrestling interpretation to the wrestling/prison break passage and a card playing interpretation to the music/card passage, whereas the reverse was true of the music education majors. Most subjects gave each passage a distinct interpretation, and most reported being unaware of an alternative while reading.

By and large, replications of the Anderson et al. study have gotten the same results, except that in subsequent investigations a larger percentage of subjects have reported being cognizant while reading of other

possible interpretations of the passages. In addition, Sjogren and Timpson (1979) found that both the sex of the subjects and their college major are related to passage interpretation. Pratt, Krane, and Kendall (Note 3) demonstrated that when the passages are presented orally, the interpretation is affected by the intonation pattern. Finally, Carey, Harste, and Smith (1981) showed that the extralinguistic context in which reading takes place plays a role in the interpretation of the passages.

Steffensen, Joag-dev, and Anderson (1979) have reported what appears to be the firmest empirical support for the hypothesis that cultural knowledge and belief influences what is comprehended from text. In research of this type (Bartlett, 1932; Kintsch & Greene, 1978), subjects normally read two passages, one containing content familiar because of the subjects' culture, the other containing content that is not familiar. The subjects usually recall more of the important propositions from the story with a familiar cultural frame than the one with an unfamiliar frame. As Steffensen et al. point out, "The problem with . . . experiments of this type is that one cannot rule out the possibility that the foreign material is inherently more difficult" (p. 3). Steffensen et al. used two groups of subjects, Indians (natives of India) and Americans. Each group read two passages, one about a typical American wedding and one about a typical Indian wedding. Subjects read what for them was the native passage more rapidly, recalled a larger amount of information from the native passage, produced more culturally appropriate elaborations

of the native passage, and produced more culturally based distortions of the foreign passage. Whether recalling the native or foreign passage, subjects recalled more text elements rated as important by other subjects with the same cultural heritage. These results show the pervasive influence of cultural schemata on comprehension and memory.

The research on cultural schemata has implications for the education of minority children. Standardized tests, basal reading programs and content area texts lean heavily on the conventional assumption that meaning is inherent in the words and structure of a discourse. When prior knowledge is required, it is assumed to be knowledge common to children from every background. When new information is introduced, it is assumed to be as accessible to one child as the next. The question that naturally arises is whether children from different subcultures can generally be assumed to bring to bear a common schema.

Of course, it is one thing to show, as Steffensen, Joag-dev, and Anderson did, that readers from distinctly different national cultures interpreted texts differently, and quite another to find the same phenomenon among readers from different subcultures within the same country. In the United States, there is a good deal of cultural overlap among blacks, whites, Hispanics, native Americans, Protestants, Catholics, and Jews. Our saturation by the popular mass media would seem to ensure that children from all groups are exposed to the same concepts and ideas. Yet differences among subcultures do exist. Minority children have had

less opportunity to acquire the schemata of the majority culture because, for the young, the most accessible schemata are those of parents and peers. Moreover, children often have difficulty interpreting events from perspectives not naturally their own (Pichert, 1979; Schantz, 1975). Thus, it is not safe simply to assume that when reading the same story children from every background will have the same amount of experience with the setting, ascribe the same goals and motives to characters, assign the same significance to events, imagine the same sequence of actions, expect the same emotional reactions, or predict the same outcomes.

The present research represented an initial empirical attempt to determine whether, despite the large amount of cultural overlap, differences of sufficient magnitude exist among groups in the United States to have an important influence on text interpretation. Black and white subjects read a letter about a school incident that could be interpreted as a fight or as an instance of "sounding." Sounding is a form of ritual insult predominantly found in the black community. Also called "playing the dozens," "smashing," and "cracking," this activity is primarily engaged in by black adolescent and preadolescent males and is likely to occur any place where there is a gathering of three or more. More than two persons are necessary because there must be an audience to judge the "sounds." Although sometimes done solely for purposes of amusement, skill in this verbal art is one way to achieve status in a male peer group. The

object of the exercise is to gain the group's favor by means of insults which tend to involve close relatives (especially the mother) and which make derogatory allusions to the poverty, physical attributes, or sexual behavior of the relative. Labov (1972) provides several examples in his article "Rules for Ritual Insults." Following are two excerpts:

> At least my mother ain't no railroad track, laid all over the country.
>
> Your mother so black, she sweat chocolate.

According to Labov, ritual insults do occur in white peer groups but the forms and topics are relatively limited, and the activity does not occupy any considerable time for the group.

It was expected that black subjects familiar with sounding would interpret the letter as featuring an example of this behavior. Whites, unfamiliar with the verbal activity, were expected to interpret the letter as being about a fight.

Experiment 1

Method

Subjects. The subjects were 186 eighth-grade students, approximately half girls and half boys. The children attended one of five schools; four were parochial schools located in the Chicago inner-city area, and one was in a small Illinois town. Two of the Chicago schools drew students from predominantly black working-class areas (n = 55), and two drew from predominantly white working-class areas (n = 70). The rural Illinois school drew from a white agricultural area (n = 61).

Materials. The experimental text was a 495-word letter allegedly written by a boy to a friend who had moved away. The letter described the events of a school day. The critical section was about an episode in the school cafeteria. Depending on the reader's perspective, it was expected that this episode would be interpreted as an actual fight or as an instance of sounding. The section of the letter dealing with the lunch line encounter read as follows:

> Classes went at their usual slow pace through the morning so at noon my friend Bubba and me were really ready for lunch. We got into line behind Sam and Tony. As usual the line was moving pretty slow, and we were all getting pretty restless. Bubba accidentally bumped into me from behind and I almost knocked both Sam and Tony down. I thought everything was cool but all of a sudden Tony turned around and sounded on me. He said, "Hey, Bob! What you doin' man? Don't you know that niggers belong in the back!" Everyone laughed, but they laughed even harder when I shot back, "Oh, yeah? Well, at least I don't have to go behind the roaches which is what you have to do to get any food at your house!" We really got into it then. The dozens were flying. After a while more people got involved--4, 5, then 6. It was a riot. People helping out anyone who seemed to be getting the worst of the deal. All of a sudden Mr. Reynolds the gym teacher came over to try to quiet things down.

Subjects completed a probe task that consisted of 43 sentences. Accompanying each probe sentence was a four-point rating scale adapted from the work of Goetz (1979). It was constructed so that the subjects

could indicate whether or not they thought the probe statement had actually appeared in the story. Subjects circled one of four options indicating that the probe statement was: (1) said in the same words as the letter, (2) not said in the letter but must be true, (3) not said in the letter but could be true, (4) not said in or implied by the letter.

Probes were designed to investigate nine different aspects of the letter ranging from the events in the cafeteria to the kinds of chores the letter writer did before he went to school. Only the probes about the cafeteria episode led to clear-cut results and only these will be discussed in this paper. It should be emphasized that none of the probe sentences actually appeared in the letter. Instead, the probes represented inferences that might be made about events described in the letter.

Design and procedure. The design involved two factors, sex and cultural background (inner-city black, inner-city white, and rural white). Each group was expected to read the experimental letter, summarize it in their own words, complete the probe booklet, and fill out the questionnaire. The dependent measures of interest were the overall interpretation given to the story, the intrusions and disambiguations that appeared in the summaries, and responses to the probe test.

Subjects participated in their own classrooms in groups ranging in size from 18 to 37. Each group received two experimental booklets. The first booklet included a cover sheet, reading and summarization instructions,

the letter, a vocabulary test, the questionnaire, and three filler tasks. The students were told to fill out the cover sheet and then to read the instructions carefully as the experimenter read aloud. The instructions told the children that they would be given a short letter to read at their own pace. Students were cautioned to read carefully because they would be "asked questions about the letter later." The students then read the letter. Those who finished early were allowed to work on the first of the filler tasks while the rest of the group finished. All of the students were then given five minutes to complete as much as they could of a 50-question vocabulary test.

Next the summary instructions were given. These instructions stated that a good summary contains "all of those key ideas and only those key ideas" necessary for someone to get the meaning of the entire passage. The subjects were told that they could use their own words and that their summaries should contain about 100 words. Subjects were allowed to write their summaries at their own speed. Students who finished quickly were given a second filler task to do.

When all of the subjects had completed the summary task, the probe task was introduced. The rating scale was explained in detail, and subjects were asked to apply it to an example. When the students had completed the example and indicated that they understood the task, they proceeded through the probe booklet at their own pace.

The final part of the experiment was a questionnaire asking about the students' attitude toward the experiment, their knowledge of sounding, and

their understanding of the letter. When students finished the questionnaire, they did a final filler task until all students in the group had finsihed. The purposes of the study were then briefly explained to the students and the experiment was concluded.

Results

Probe task. A preliminary analysis of variance was performed on the probe data using Cultural Background (inner-city black, inner-city white, rural white) and Order (4 random orderings of probes) as between-groups factors. The order variable was not significant, $F < 1$, and did not interact with any other factors; hence it was dropped from subsequent analyses.

The analyses for the probe data were performed using Cultural Background and Sex as between-group factors. Probe Type (sounding or fight) was a within-subject factor. The analysis revealed a large main effect for Probe Type, $F(1,180) = 442.82$, $p < .01$, and a small but significant Culture X Probe Type interaction, $F(2,180) = 6.24$, $p < .01$. Table 1 contains the mean ratings given to the sounding and fight probes. The city and rural white groups were pooled because there was no difference between them. As can be seen, the main effect was due to statements reflecting the fight interpretation being rated as more likely to have appeared in the letter than sounding statements. The interaction resulted from blacks rating sounding statements slightly more likely and fight statements as slightly less likely than whites.

Insert Table 1 about here.

Theme analysis. The summaries were read by two independent judges and rated as to whether they reflected a fight or a verbal interplay interpretation. The verbal interplay category included, but was not limited to, specific identification of the lunch line episode as an instance of sounding. Otherwise, the scoring would have begged the question since few white subjects would have been able to make this specific identification. With the exception of a few additional interpretations such as an angry argument, the summaries included in the category labeled "other" were primarily of an indeterminate theme, mirroring the ambiguous nature of the passage. The reliability between the two raters was .95.

An analysis of the theme ratings indicated that verbal interplay interpretations were more frequent among blacks, while fight interpretations were more frequent among whites, $\chi^2(2) = 18.6$, $p < .01$. Table 2 shows the proportions.

Insert Table 2 about here.

Disambiguations and intrusions. An analysis was made of disambiguations and intrusions in the summaries. (This analysis, it should be mentioned, was not independent of the theme analysis reported above.)

A disambiguation was defined as a paraphrase of an idea that revealed the subject's underlying interpretation. A theme-revealing intrusion was scored when a phrase or sentence not directly related to any proposition

in a passage was included in the recall. Two independent raters scored the protocols for disambiguations and intrusions. They agreed on 94% of the scoring decisions.

Insert Table 3 about here.

The disambiguations and intrusions were divided into three categories: fight, sounding, and race. Table 3 gives some examples of each type.

The fight category contained disambiguations and intrusions that reflected incidences of physical aggression. The sounding category involved elaborations on the theme of verbal play. The race disambiguations consisted of how the word and/or euphemisms for the word "nigger" were used (see Holt, 1972) and a few other racial intrusions. The results revealed a significant interaction between Cultural Background and Sex, $F(2,180) = 3.30$, $p < .05$, for fight disambiguations and intrusions. This appeared because of the low frequency of fight interpretations among black males. There were no other significant differences.

Amount of information. For purposes of evaluating the amount of text information reproduced in the summaries, the letter was divided into 93 idea units. Two independent raters scored the subjects' protocols for the presence or absence of individual idea units. They agreed on 96% of the scoring decisions. Significant main effects were found for Cultural Group, $F(2,180) = 3.60$, $p < .05$, and Sex $F(2,180) = 12.35$, $p < .01$. There was more information reproduced in the summaries of whites and females.

Discussion

The results obtained from Experiment 1 indicated that the subjects' interpretations of the cafeteria incident as either ritual insulting or a fight were related to culturally based knowledge and beliefs. However, even among blacks the incident was often interpreted as a fight. We judged that more accurate and stronger results could be obtained if the materials were improved and confusing elements of the task were eliminated. With this in mind, two experimenters, one white female and one black female, went to an inner-city school in St. Louis, Missouri, and interviewed children about their interpretation. Black and white female experimenters were used because studies have shown that subjects express themselves more openly with female experimenters of the same race (Casciani, 1978; Grantham, 1973).

The subjects were 31 eighth-grade students, approximately half black and half white. The students were tested individually in a room separate from their classroom. The first task was to read the same experimental text as was used in Experiment 1. After the student finished reading, the remainder of the session was recorded. Oral protocols were recorded instead of written ones, because children may not write down everything they know; and we felt that the oral mode would make it easier to probe areas of possible confusion or ambiguity in order to more directly assess the subjects' interpretation of the passage. Once the tape recorder was on, students were asked several questions about their family, school, and

free-time activities which provided background information and served as a filler task. The experimenter then asked for an oral recall of the story. After the recall several probe questions were asked, some of which specifically sought to determine the subjects' interpretation of the cafeteria incident. The entire session usually lasted approximately 15 minutes.

The interviews suggested that phrases, such as "accidentally bumped" and "knocked down," implied physical aggression. Also the use of the term "nigger," although established as an acceptable in-group form of address, in conjunction with the phrases of physical aggression implied a black/white confrontation. Therefore, the term and phrases were deleted. Terms referring directly to the activity of sounding, such as "cappin" (St. Louis) or "checkin" (Memphis), were not used this time, since it might be argued that the results would hinge simply on the differential knowledge black and white children have of these key vocabulary items. To avoid character confusion, only two names were provided for characters in the letter, as compared to the four in the version used in Experiment 1. Finally, many children had difficulty writing a summary, so in Experiment 2 complete recall of the letter was asked for.

Experiment 2

Method

Subjects. The subjects were 105 eighth grade-students, approximately half girls and half boys. Nine students were dropped from analysis because

their recall and probe data suggested that they did not seriously attend to the task. The children attended one of three schools, located in Memphis, Tennessee; Mahomet, Illinois; and Ogden, Illinois. The Memphis school drew students from a black working-class area (n = 54), and the two Illinois schools drew from a white agricultural area (n = 51).

Materials. There were two experimental booklets. The first booklet was essentially the same as that used in Experiment 1 except for the modifications in the experimental text made as a result of the findings of Experiment 1 and the interview study. The revised section of the letter dealing with the lunch line encounter read as follows:

> Classes went at their usual slow pace through the morning, so at noon I was really ready for lunch. I got in line behind Bubba. As usual the line was moving pretty slow and we were all getting pretty restless. For a little action Bubba turned around and said, "Hey, Sam! What you doin' man? You so ugly that when the doctor delivered you he slapped your face!" Everyone laughed, but they laughed even harder when I shot back, "Oh yeah? Well, you so ugly the doctor turned around and slapped your momma!" It got even wilder when Bubba said, "Well, man, at least my daddy ain't no girl scout!" We really got into it then. After a while more people got involved--4, 5, then 6. It was a riot! People helping out anyone who seemed to be getting the worst of the deal. All of a sudden Mr. Reynolds the gym teacher came over to try to quiet things down.

The second booklet contained the probe statements. Each of the 29 probe sentences was accompanied by the four-point rating scale. Thirteen probe statements were deleted from the original probe booklet because they were no longer relevant to the modified passage.

Design and procedure. There was a two-way factorial design involving sex and cultural background. Each group was expected to read the experimental letter, write as complete a recall as possible, complete the probe booklet, and fill out the questionnaire. The dependent measures of interest were the overall interpretation given to the story, the intrusions and disambiguations that the subjects included in the recall protocols, and responses to the probe test.

Subjects participated in their own classrooms in groups ranging in size from 20 to 35. Each group received two experimental booklets. The subjects' first task was to read the entire letter, contained in the first booklet, and then to write down as much of the letter as they could remember. This procedure differed from that of Experiment 1 in that it was emphasized that they were to "write down every bit of the letter" that they could remember. Subjects were asked to use the same words that were in the letter if possible. If not, they could use their own words. No limit was put on the recall, and the subjects were allowed to write at their own speed. Students who finished quickly were given a filler task to do.

When all of the subjects had completed the recall task, the probe task was introduced. As in Experiment 1, to ensure that the students

understood what they were to do in this phase of the experiment, a simple example was constructed to illustrate what each category meant. When the students had completed the example and indicated that they understood the task, they proceeded through the probe booklets at their own pace.

The final part of the experiment was devoted to a questionnaire that asked about the students' attitude toward the experiment, knowledge about sounding, and understanding of the letter. When students finished the questionnaire, they did a final filler task until all students in the group had finished. The purposes of the study were then briefly explained to the students and the experiment was concluded.

Results

Performance on probe task. An unweighted means analysis of variance was performed on the probe data using Cultural Background (black vs. white) and Sex as between subjects factors and Probe Type (fight vs. sounding) as a within-subject factor. The dependent measure was the subjects' rating as to whether or not the probe had actually appeared in the experimental passage. There were no significant main effects, but the Culture X Probe Type interaction was significant, $F(1,92) = 52.92$, $p < .01$. Table 4 shows the mean ratings given to sounding and fight probes by the two cultural groups. No other results reached significance.

Insert Table 4 about here.

Theme analysis. Subjects' recall protocols were read by two independent scorers and rated as to whether they reflected a fight or a verbal interplay interpretation. The reliability between these two raters was 95%. Ratings of the theme were related to the child's culture, $\chi^2(2) = 16.8$, $p < .01$, as can be seen in Table 5.

Insert Table 5 about here.

Disambiguations and intrusions. Using the same definition of disambiguations and intrusions that were used in Experiment 1, two independent raters scored the subjects' recall protocols. They agreed on 96% of the scoring decisions. Unweighted means analyses of variance were then performed using Cultural Background, Sex, and Type of Expression (fight or verbal interplay) for both disambiguations and intrusions. For disambiguations, only the Culture X Type of Expression interaction was significant. $F(1,92) = 14.07$, $p < .01$. For intrusions, a significant main effect was found for Type of Expression, $F(1,92) = 4.80$, $p < .05$, and the Culture X Type of Expression interaction was also significant, $F(1,92) = 6.57$, $p < .01$. The Type of Expression effect was due to more sounding intrusions than fight intrusions. The interactions appeared because blacks produced more sounding intrusions and disambiguations, whereas whites produced more fight intrusions and disambiguations.

No systematic analysis of amount of recall was done in Experiment 2. However, our impression is that whites and females recalled more text information.

General Discussion

Evidence obtained from the recognition probes, theme analysis, and disambiguations and intrusions in both experiments indicated that subjects' perceptions of the cafeteria incident as either ritual insulting or a fight was related to culturally based knowledge and belief. The following probes, reflecting a sounding interpretation, were rated closer to the text by black subjects than by white subjects.

> Mr. Sanderson made the boys stay after school for a week because he had warned them about loud talking earlier.
> Bob and the other guys were just laughing and joking around.

Ratings by black and white subjects reversed for the following, which reflected a misunderstanding of the event in the text:

> Bob and Tony got in trouble because they were fighting in the cafeteria.
> Mr. Reynolds had to break up the fight.

None of these four probes was, in fact, present in the original passage.

Subjects' expansions of the text also showed the influence of cultural schemata. In the passage used in Experiment 1, the first sound involved the archetypal racist situation of blacks being forced to the end of the line:

> Hey Bob! What you doin' man? Don't you know that niggers belong in the back!

There were a number of distortions that reflected similar sorts of segregation practices. For example, one subject recalled:

#85 WF: Tony turned around and said I was supposed to stand in back of him because of my color.

A more complex intrusion involved the inference that the writer was bussed to school, which was in itself a distortion of the statement in the original text, "We barely caught our ride . . ." The protocol read:

#49 BF: Coming home they had some trouble. They got the bus as usual. When it was crowded a boy replied, I thought black people was supposed to sit in the back of the bus.

A surprising number of informants saw the addressee as actually accepting this racist insult and moving to the end of the line:

#34 BF: . . . and said. Nigger, you should be in the back. And he went to the back. Then everyone started to laugh . . .

It should be noted that two of these examples are drawn from black subjects.

The second sound in the text used in Experiment I was a well-formed one since the speaker seized the theme of being in the back of the line and elaborated it to his antagonist's disadvantage. The text read:

Well, at least I don't have to go behind the roaches which is what you have to do to get any food at your house!

While many of our subjects remembered the first insult, many forgot the successful response--in spite of the fact that it was an appropriate sequel on the basis of its grammatical structure and semantic content. Some of the distortions included:

#69 WM: Then Bob answered Tony by implying that his mom's food had roaches.

#71 WM: I told him he eats cockroaches.

These subjects remembered only that cockroaches were mentioned and produced stereotyped retorts.

One black subject demonstrated a clear understanding of the sounding event through his use of the term "signifying:"

#55 BM: Bob fell into two other boys. One of them got mad, and started to signify on Bob. Not to be out-done Bob jumped back on the boy's case. Then others started to join in on the signifying.

Kochman (1972, p. 256) points out that although "signifying" has different meanings elsewhere in the country, in Chicago the term is a synonym for sounding. A white male used the term "dozens" as a quantifier, which showed equally well that he did not understand the speech event:

#54 WM: In the lunch period Bubba made a remark that I didn't like. Then the fists were flying by the dozens.

There was a tendency on the part of both black and white subjects to give the passage used in Experiment I a racist interpretation, sometimes a violent one. We attributed this to the use of the term "nigger," which was intended as an inverted term symbolizing group solidarity. In her paper, "'Inversion' in Black Communication," Holt (1972) analyzes the use of derogatory epithets by the referenced group as a form of linguistic survival. In a system in which the black person was a chattel, the process of giving reverse meanings to words and phrases of white speech was a means of resistance against the dominant population. Holt states:

> . . . the most "soulful" terms or referents in black usage today are those which traditionally have been the symbols of oppression. Take the word "nigger" as the prime example. When used by whites it has only one meaning, though the degree of degradation may vary with the users. When used by blacks, the word is often used as a term of affection, admiration, approval; it is a word of positive connotation, a contradiction of original intent (1972, p. 154).

As one would predict, there were widely differing responses across cultural group and sex which could be related to differences in the affective loading of the term "nigger." Protocols were examined for four different categories of expression. The first consisted of those in which the term was not mentioned at all; the second consisted of euphemisms ("black people," "negroes"); the third, of expanded euphemisms ("made a remark concerning his color"); and the fourth, of the term itself.

Black males were most inclined to omit the term completely (58%) and were also least inclined to use euphemisms (19%), while black females were second in these two categories (35% and 30%, respectively). White males and females were highly inclined to resort to euphemisms (41% and 42%, respectively). This distribution suggests that black subjects perceived "nigger" as an inverted form and either used it or omitted it, but did not feel that a euphemism was called for. White subjects were not aware of this reversal in values and resorted to various means to ameliorate the stigma they felt it entailed.

However, there were problems with the use of this term in the original text. First, there was some evidence that interpreting the event as a black/white confrontation, often with overtones of physical violence, obscured the cross-cultural difference of interest--familiarity with the highly stylized and verbally demanding behavior of ritual insulting. Second, the individual interviews suggested that the term "nigger" was used in a way which may have blocked an inverted reading even on the part of black subjects, despite the distribution of responses that was found. Subjects indicated that an inverted reading would have been possible if the term had been used as a form of address, i.e., "Nigger, don't you know you belong in the back!" but was not when the term was used referentially. Obviously, intonation is of crucial importance for conveying the correct meaning.

In Experiment 2, when the term "nigger" and vague references which could be interpreted as physical aggression were dropped, more pronounced differences between inner-city blacks and rural whites were found. In the recall protocols, black subjects remembered that what was going on in the cafeteria was "just for fun" and that the teachers "tried to help stop the noise" but could not, so the students ended up in the principal's office. One black male said:

#69 BM: Than [sic] everybody tried to get on the person side that joke were the best.

This is probably a more accurate reflection of what really goes on in most sounding events than the statement in the text: "People helping out anyone

who seemed to be getting the worst of the deal." Another subject used the local term "checking" in his recall. White subjects, on the other hand, showed a tendency to describe the event as "horrible," said that the two participants "were both angry," and generally recalled the event as a fight:

#025 WM: Soon there was a riot all the kids were fighting.

#011 WF: Me and Bubba agreed to finish our fight later, off the school ground.

Responses to the debriefing questions showed that black subjects were more likely to think the episode involved friends (81%) than were white subjects (58%). A greater percentage of white subjects (43%) thought observers in the story laughed because there was a fight than did black subjects (15%).

A cultural basis for differences in reading comprehension was also supported by responses to the probe statements and by the theme ratings abstracted from subjects' protocols. When only male subjects are considered, the results are even stronger. This supports the claim that the text is tapping a real cultural difference, since sounding is found primarily in male groups. In no protocols was the cafeteria episode given an interracial interpretation, although in the debriefing questions, when subjects were asked to select race, the majority indicated that both blacks and whites were involved.

There were indications of other differences in the knowledge and assumptions of the two groups in the recall protocols. A number of black subjects changed the vague textual reference to punishment (Boy!

Did I get it when I got home.) to a "whipping ∿ whupping ∿ whooping." White subjects made references to the scolding they would receive if they did not complete their chore. These expansions probably reflect differences in patterns of family discipline.

Implications for Schooling

It had been suggested (Anderson, 1977; Anderson, Reynolds, Schallert, & Goetz, 1977) that some of the reading problems minority children have might be attributable to mismatches between their subculture and the culture of the white middle-class people who generally write their textbooks. It is clear from the recall protocols and responses to the probes that black and white children had very different impressions of what occurred in the experimental passage. In this case one could say that it was the white children who misinterpreted the text. This reverses the usual state of affairs in which it is the black child who is counted wrong for his interpretations of material that presupposes knowledge he does not possess and values he does not hold.

Effects of culture were observed in present research using material deliberately selected because it was culturally loaded. Presumably, most of the publishing industry tries very hard to avoid cultural bias. Thus, one may wonder how much school material there is that will give minority children trouble because of its majority-culture loading.

Attempts to assay cultural bias in texts are not new. In 1947, the American Council on Education found that textbooks were "distressingly

inadequate, inappropriate, and even damaging to intergroup relations" (cited in Simms, 1975). In 1960, the Anti-Defamation League noted some improvement but found that minorities were still not realistically portrayed in most social studies texts (Marcus, 1961; cited in Simms, 1975). Simms (1975) has described bias in texts in terms of errors of commission and omission. The first type involves stereotyping, ethnocentrism, and prejudicial statements and caricatures that demean minorities. The second type can be characterized as "much more subtle and insidious" because it involves all that is left out. This includes the contributions made to American culture by minority ethnic groups. Such a bias results in both a failure to provide the minority child with positive models and the miseducation of the majority child. Jackson (Note 4), in his review, "Trends in Publishing for Ethnic Studies," argues that many text and trade books still degrade minorities. However, with the growth of publishing houses controlled by minority members and, perhaps, because more minority persons are employed in the publishing industry at large, the quality of the cultural content of materials is judged to be improving.

Most analyses of possible cultural bias in school materials have been sociopolitical in character. Analysts have worried about such matters as whether the portrayal of minorities is fair, whether the minority child will develop pride in his ethnic heritage, and whether the minority child will sustain an interest in stories that always take the majority culture perspective. Few studies have tried to find out if minority children find

school material difficult to understand because of cultural mismatch. Fewer still have gathered data that trace a misunderstanding to a cultural origin.

The exceptions of which we are aware involved performance on reading comprehension tests, perhaps because tests offer a ready performance criterion. Nix and Schwarz (1979) interviewed 10 inner-city high school students, asking them to explain answers to test questions. The finding was that these students brought to bear a different system of assumptions than members of the majority culture. This led them to answers which were often "wrong," but were generally sensible considering their assumptions.

Linn, Levine, Hastings, and Wardrop (1980) developed a statistical method for detecting possible bias in test items. The procedure was to evaluate whether, considering level of ability as estimated from total test score, the minority group did better or worse on particular items than the majority group. The method was applied to data from 30,000 black and white children from the Anchor Test Study (Biachini & Loret, 1974) who had taken the Metropolitan reading comprehension test (Durost, Bixler, Wrightstone, Prescott, & Balow, 1970). Using a strict standard of what counts as bias, Linn and his colleagues identified two items consistently biased against black fifth and sixth graders, and one which was consistently biased in their favor.

A group at the Center for the Study of Reading did a content analysis of the Metropolitan reading comprehension test looking for cultural bias.

Five items were judged as probably biased against blacks. These evaluations were checked using the empirical measure of bias computed by Linn and his colleagues (1980, Appendix F). Each of the five items did in fact show some bias. However, the content analysis did not identify the two items that the empirical analysis revealed as most biased against blacks, though one of the latter two items was judged in the content analysis as possibly biased. This item involved a passage about a visit of Captain Cook to a group of islands in the South Pacific. The critical section was,

> . . . he called them the Friendly Islands because of the character of their people. Today, the Tongans still provide visitors with a warm welcome.

The test item asked for the meaning of the word character as it was used in the story. Most whites chose nature, the answer scored as correct. Blacks frequently chose style. This is a term used more in black than white communities, and it can be argued that in its colloquial sense style is more apt than nature as a synonym for character. It is apparent, at least, that style is not a wrong answer.

In summary, when reading material covers an area in which there is a clear cultural difference, as illustrated by the sounding episode used in the present research, there are large differences among groups in comprehension. However, because of cultural overlap and because the educational publishing industry tries to avoid bias, such cultural loading

as may be present in standardized tests, basal readers, and other school reading material is usually subtle. The trouble we had in predicting biased test items from an a priori content analysis illustrates how difficult it can be to detect culturally loaded material. We know such material exists, but no one currently has hard evidence about the pervasiveness of the problem. Determining its extent should be one of the major goals of future research.

In the present experiments, for once, a reading passage was biased in favor of black inner-city students since it was based on their implicit knowledge and system of relevancies. The reaction that many white middle-class teachers and students have to inner-city black students trying to work their way through culturally loaded material was mirrored by one of our black male subjects. Upon being told that white children understood the letter to be about a fight instead of sounding, he looked surprised and said, "What's the matter? Can't they read?"

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Table 1

Mean Ratings Given to Fight

and Sounding Probes, Experiment 1

	Type of Probe	
	Fight	Sounding
Black	2.3	3.2
White	2.1	3.4

Note: Ratings on a scale of 1-4, where 1 meant identical with text and 4 meant inconsistent with text.

Table 2

Proportion of Protocols

Showing Theme, Experiment 1

Group	Theme		
	Fight	Verbal Interplay	Other
Black	.31	.26	.43
White	.61	.09	.30

Table 3

Examples of Theme-Revealing

Disambiguations and Intrusions

Sounding Theme

Joe had been warned two times already not to fuss and call people out of name and talk about them.

One of them . . . started to signify on Bob.

Fight Theme

Everybody got into a fight.

I had to hit him back.

Fists were flying.

Bumping one person start the hole fight.

Race Theme

I didn't no negroes were ahead of us white people.

He said to the black boy in back of him to go to the end of the line because he was black.

The letter I read was about racial discrimination.

One boy named Bob was a black boy in a school where mostly white people went.

Combination Fight-Race Theme

Boy! We were going mad at them niggers last Thursday . . . We killed all those Africans.

The white boys wanted to fight but the Black boys didn't.

Table 4

Mean Ratings Given to Fight

and Sounding Probes, Experiment 2

Group	Type of Probe	
	Fight	Sounding
Black	3.0	2.2
White	2.2	2.8

Note: Ratings on a scale of 1-4, where 1 meant identical with text and 4 meant inconsistent with text.

Table 5

Proportion of Protocols

Showing Theme, Experiment 2

Group	Theme		
	Fight	Verbal Interplay	Other
Black	.00	.30	.70
White	.22	.10	.68

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